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ABSTRACT OF THE DISCLOSURE

The structure and function of a regulatory gene, *SHORT-ROOT (SHR)*, is described. The *SHR* gene is expressed specifically in root progenitor tissues of embryos, 5 and in roots and stems of seedlings and plants. *SHR* expression controls cell division of certain cell types in roots and affects the organization of root and stem tissues, and affects gravitropism of aerial structures. The invention relates to the *SHR* gene, *SHR*-like genes, *SHR* gene products, (including but not limited to transcriptional products such as mRNAs, antisense, and ribozyme molecules, and translational products such the *SHR* protein, 10 polypeptides, peptides and fusion proteins related thereto), antibodies to *SHR* gene products, *SHR* promoters and regulatory regions and the use of the foregoing to improve agronomically valuable plants.

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